

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 209 796 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
04.02.2004 Bulletin 2004/06

(51) Int Cl.7: **H02K 1/14**, H02K 1/20,
H02K 1/18

(43) Date of publication A2:
29.05.2002 Bulletin 2002/22

(21) Application number: 01123501.7

(22) Date of filing: 28.09.2001

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR
Designated Extension States:
AL LT LV MK RO SI

• **Kitada, Shinichiro**
Tokyo (JP)
• **Kaneko, Yutaro**
Yokohama-shi, Kanagawa (JP)

(30) Priority: 21.11.2000 JP 2000353869

(71) Applicant: **Nissan Motor Co., Ltd.**
Yokohama-shi, Kanagawa (JP)

(74) Representative: **Weber, Joachim, Dr.**
Hoefer & Partner
Patentanwälte
Gabriel-Max-Strasse 29
81545 München (DE)

(72) Inventors:
• **Kikuchi, Toshio**
Yokosuka-shi, Kanagawa (JP)

(54) **Rotating electrical machine**

(57) A rotating electrical machine is proposed which effectively cools a stator and prevents the generation of an eddy current in the stator. A cooling liquid passage (22) extends in a direction parallel with the rotating shaft (2A) of the rotor (2) between an outer peripheral face of the stator cores (4) and an inner peripheral face of the case (1) storing the stator cores (4). The cooling liquid is passed through the cooling liquid passage (22). In this manner, a highly effective cooling results from direct contact of the cooling liquid and the stator cores (4). Furthermore an eddy current is not generated in the stator core (4) as a result of using a cooling liquid having insulating properties.

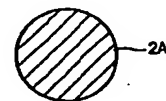
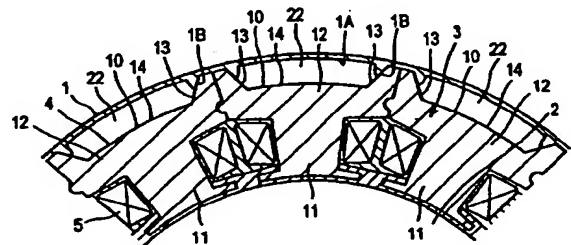


FIG.1

BEST AVAILABLE COPY



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 12 3501

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 2 845 551 A (POTTER MARION G) 29 July 1958 (1958-07-29)	1,2	H02K1/14H02K1/20 H
Y	* figures 1,4 * * column 5, line 17 - line 21 *	3-6	H02K1/14
X	DE 41 03 154 A (UWE UNTERWASSER ELECTRIC GMBH) 6 August 1992 (1992-08-06) * claim 1; figure 2 * * column 2, line 61 - line 67 *	1,2	
Y	US 2 247 890 A (REARDON ROBERT T) 1 July 1941 (1941-07-01) * page 1, line 39 - line 43; figure 2 *	3,4	
Y	GB 387 961 A (PAUL EHRLMANN) 16 February 1933 (1933-02-16) * figures 4,6 *	3,5	
Y	EP 0 823 771 A (MATSUSHITA ELECTRIC IND CO LTD) 11 February 1998 (1998-02-11) * column 5, line 17 - line 24; figure 4 *	6	
A	US 4 764 699 A (NOLD ROBERT D) 16 August 1988 (1988-08-16) * abstract; figure 1 *	2	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H02K
A	US 3 221 195 A (HOFFMANN JACK H) 30 November 1965 (1965-11-30) * column 2, line 19 - line 21; figures 1-6 *	3-5	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 18 December 2003	Examiner Contreras Sampayo, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

BEST AVAILABLE COPY

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 12 3501

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-12-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2845551	A	29-07-1958	NONE	
DE 4103154	A	06-08-1992	DE 4103154 A1	06-08-1992
US 2247890	A	01-07-1941	NONE	
GB 387961	A	16-02-1933	GB 389313 A	16-03-1933
			BE 388508 A	30-06-1932
			DE 664532 C	29-08-1938
			DE 644532 C	07-05-1937
			FR 717252 A	06-01-1932
			GB 387622 A	09-02-1933
			US 1959527 A	22-05-1934
EP 0823771	A	11-02-1998	EP 0823771 A1	11-02-1998
			US 6049153 A	11-04-2000
			CN 1180457 A , B	29-04-1998
			WO 9731422 A1	28-08-1997
			JP 3417409 B2	16-06-2003
			JP 2002238193 A	23-08-2002
			JP 2002209353 A	26-07-2002
			JP 2002199639 A	12-07-2002
			JP 2002209368 A	26-07-2002
			US 6300700 B1	09-10-2001
			US 6369480 B1	09-04-2002
			US 6356001 B1	12-03-2002
			US 2002036438 A1	28-03-2002
			US 2002070619 A1	13-06-2002
US 4764699	A	16-08-1988	EP 0297119 A1	04-01-1989
			JP 1501674 T	08-06-1989
			WO 8804857 A1	30-06-1988
			US 4825531 A	02-05-1989
US 3221195	A	30-11-1965	GB 965038 A	29-07-1964

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

BEST AVAILABLE COPY

THIS PAGE BLANK (USPTO)